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JAMES I <110> DALE HARDING THE RT MAXWELL BECKER, DOUGLAS KEITH

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YANG, ILIN

<120> TRANSCRIPTIONAL CONTROL ELEMENT, CHIMERIC CONSTRUCTS AND USES THEREFOR

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<141> 2005-01-18

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Ser Leu His Ser Ser Val Ser Ile Lys Glu His Tyr Glu Val Val Ser 50 55 60

Lys Leu His Ser Leu Glu Lys Ser Ile Glu Glu Leu Lys Ser Glu Leu 65 70 75 80

Thr Thr Val Lys Arg Ala Leu Thr Ser Ile Gln Lys Glu Val Phe Thr 85 90 95

His Lys Pro Leu Thr Ala Gln Glu Val Gln Thr Leu Ala Gln Ser Leu 100 105 110

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Lys Ser 145

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<213> Taro bacilliform virus

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Asn Asn Thr Ile Ile Asn Leu Leu Ile Ser Leu His Lys Lys Val Asp 50 60

Ser Leu Ser Lys Lys Thr Asp Val Asp Glu Leu Ala Thr Glu Leu Ser 65 70 75 80

Lys Leu Thr Ile Lys Asp Thr Pro Lys Val Lys Ala Lys Thr Pro Leu 85 90 95

Tyr Val Phe Lys Ser Pro Arg Leu Ile Leu Glu Glu Glu Arg Tyr Lys
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Ile Gly Leu Pro Pro Thr Thr Thr Asp Trp Thr Trp Pro Val Gly His
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- Thr Val Pro Ser Gln Gln Asp Gln Ile Arg Asp Tyr Arg Asn Met Gln 20 25 30
- Arg Val Arg His Thr Ala Glu Arg Ala Ala Arg Arg Ile Phe Pro Gly 35 40 45
- Arg Phe Asn Arg Thr Leu Glu Ser Gln Ile Asn Pro Glu Ala Glu Ile 50 55 60
- Arg Leu Ser Gln Gln Arg Arg Ala Ala Met Val Pro Ala Glu Val Leu
  65 70 75 80
- Tyr Asn Thr Ser Pro Ser Thr Arg Asn Gln Lys Val Tyr Gln His Tyr 85 90 95
- Ser Glu Glu Arg Ile Leu Cys Thr Gly Gln Asn Gln Gln Leu Asn Leu 100 105 110
- Pro Phe Ile Asn Glu Ser Ser Tyr Arg Ala Leu Arg Glu Ser Gly Gln 115 120 125
- Gln His Leu His Ile Gly Leu Ile Met Ile Arg Val His Pro Leu His 130 135 140
- Arg Arg Asn Ala Gly Thr Thr Ala Leu Ile Val Pro Arg Asp Ile Arg 145 150 155 160
- Trp Asn Asp Asp Arg Ser Ile Ile Gly Thr Met Glu Ile Asp Leu Ser 165 170 175
- Ala Gly Ser Gln Ile Val Tyr Ile Ala Pro Asn Ile Met Leu Ser Val 180 185 190
- Glu Asp Phe Tyr Arg Asn Ile Gln Leu Ala Ile Gln Thr Gln Gly Tyr 195 200 205
- Glu Asn Trp Asn Ser Ala Glu Ser Asn Leu Leu Ile Ser Arg Ala Leu 210 215 220
- Ile Gly Arg Leu Thr Asn Asp Ser Phe Thr Gly Phe Gln Tyr Asn Ile 225 230 235 240
- Ser Asn Val Ala Glu Tyr Leu His Ser His Gly Val Gln Ala Ile Glu 245 250 255
- Gly Gln Ala His Pro Arg Thr Leu Gly Asn Arg Trp Ile Leu Gln Ala 260 . 265 270

- Pro Ala Pro Pro Arg Ser Leu Val Pro Gln Asn Val Glu Thr Thr Thr 275 280 285
- Leu Leu Asp Gly Asn Val Ser Ile Arg Phe Ser Asn Tyr His Gln Ala 290 295 300
- Pro Val Asn Asp Thr Gln Asp Asn Ser His Pro Asp Ile Gln Glu Asp 305 310 315 320
- Glu Asn Gln Phe Ile Gly Phe Leu Ser Asp Leu Gly Glu Glu Tyr Glu 325 330 335
- Leu Glu Tyr Pro Ser Phe Thr Pro Val His Ala Asp Glu Phe Ile Phe 340 345 350
- Ile Ile Asn Gly Glu Glu Ile Pro Asp Asp Phe Val Ser Ser Phe 355 360 365
- Cys Ser Asn Phe Ser Pro Pro Pro Ile Pro Glu Pro Glu Pro Thr Ala 370 375 380
- Ile Glu Glu Thr Ala Phe Thr Leu Glu Glu Gln Phe Asn Asp Leu Asp 385 390 395 400
- Tyr Pro Thr Leu Ile Ser Met Glu Lys Gln Leu Val Gln Ser Ser Val 405 410 415
- Thr Ser Ala Tyr Asn Pro Pro Thr Glu Pro Leu Met Gly Gln Val Val 420 425 430
- Tyr Pro Pro Ala Ser Ala Pro Arg Pro Gln Ala Glu Thr Ser Ser Thr 435 440 445
- Ser Glu Arg Phe Lys Asn Phe Arg Ala Lys Pro Tyr Ser Thr Pro Thr 450 455 460
- Ile Phe Leu Pro Pro Ala Tyr Asn Gln Gln Gly Ala Ile Leu Val Leu 465 470 475 480
- Pro Asp Asp Ile Gly Leu Tyr Glu Asp Thr Ile Ser Arg Trp Glu Ser 485 490 495
- Ile Thr Leu Asn Met Met Asn Glu Lys Val Trp Pro Ser Asn Glu Ala 500 505 510
- Lys Ala Lys Tyr Met Glu Asn Leu Leu Gly Glu Met Glu Lys Lys Thr 515 520 525
- Trp Ile Gln Trp Arg Thr Thr Tyr Val Ser Glu Tyr Asp Ala Leu Val 530 535 540
- Gln Gln Ser Asp Glu Thr Gln Asn Leu Leu Ser Gln Val Arg Arg Ile 545 550 555 560
- Phe Leu Leu Gln Asp Pro Tyr Gln Gly Ser Thr Ala Glu Gln Asp Gln 565 570 575

- Ala Tyr Asn Asp Leu Glu Arg Ile Ser Cys Asp Asn Ile Lys Asp Leu 580 585 590
- Ile Pro Tyr Leu Ile Gln Phe Arg Asn Leu Ala Ala Lys Ser Gly Arg 595 600 605
- Leu Phe Leu Gly Pro Glu Leu Ser Glu Lys Leu Phe Arg Lys Met Pro 610 620
- Pro Leu Ile Gly Lys Glu Ile Glu Thr Ala Phe Ile Ala Lys His Gly 625 630 635 640
- Asn Ala Asn Ile Thr Val Met Pro Arg Ile His Phe Ala Tyr His Tyr 645 650 655
- Leu Ala Glu Leu Cys Lys Lys Ala Ala Leu Gln Arg Ser Leu Lys Asp 660 665 670
- Leu Ser Phe Cys Asn Gln Ile Pro Leu Pro Gly Ile Tyr Thr Lys Gly 675 680 685
- Asn Lys Lys Phe Gly Leu Arg Lys Ala Arg Thr Tyr Lys Gly Lys Pro 690 695 700
- His Pro Thr His Val Arg Val Phe Lys Lys Ala Lys Tyr Gln Arg Thr 705 710 715 720
- Lys Lys Cys Lys Cys Phe Ile Cys Gly Glu Pro Gly His Phe Ala Arg
  725 730 735
- Glu Cys Thr Lys Gln Arg Gly Asn Ile Val Arg Ala Thr Val His Gln 740 745 750
- Glu Leu Ala Ile Pro Asp Asn Phe Asp Val Val Ser Val Asp Ala Asp 755 760 765
- Glu Ser Asp Ser Ser Gly Ile Tyr Ser Tyr Ser Glu Asn Glu Ala Pro 770 775 780
- Leu Gln Glu Val Asn Ser Phe Ile His Asp Glu Asn Ile Phe Phe Leu 785 790 795 800
- Ser Asp Ala Asp Glu Phe Glu Ser Pro Gln Gln His Leu His Glu Thr 805 810 815
- Val Asn Met Leu Gln Ser Arg Ser Ala Tyr Leu Pro Gln Val Ala Val 820 830
- Gly Glu Glu Lys Leu Asn Cys Ser His Ile Trp Leu Gln Asp Val Asp 835 840 845
- Ile Pro Ser Asp Lys His Lys Cys His Thr Cys Arg Arg Asp Thr Gln 850 860
- Lys His Tyr Arg Leu Glu Cys Gln Lys Cys Lys Phe Leu Val Cys Ser 865 870 875 880

- Leu Cys Thr Ile Pro Tyr Leu Gly Ile Thr Met Gln Phe Arg Gln Lys 885 890 895
- Gln Lys Ser Gln Pro Glu Asn Pro Asn Leu Val Arg Glu Leu Leu Glu 900 905 910
- His Ala Ile Phe Leu Glu Glu Lys Cys Lys Asn Gln Glu Leu Leu Ser 915 920 925
- Glu Thr Gln Ile Glu Arg Ile Val Ser Ser Glu Lys Gln Val Lys Phe 930 935 940
- Tyr Gly Ile Leu Pro Thr Lys Lys Ser Asn Lys Ser Ala Gly Tyr Asp 945 950 955 960
- Leu Gln Ser Asn Ile Asp Ile Glu Ile Pro Pro Gly Lys Cys Thr Val 965 970 975
- Ile Ser Thr Gly Thr Phe Leu Gln Met Pro Asp Asn Met Tyr Gly Arg 980 985 990
- Leu Val Glu Arg Thr Ser Leu Ala Ile Gln Gly Ile Thr Val Gln Gly 995 1000 1005
- Gly Val Ile Asp Pro Asp Phe Thr Gly Glu Ile Gln Ile Val Leu Phe 1010 1015 1020
- Asn His Asn Thr Ala Pro Tyr Pro Val Lys Lys Thr Tyr Arg Leu Ala 1025 1030 1035 1040
- Gln Ile Ile Phe Glu Lys Phe Tyr Thr Pro Ile Phe Ile Gln Glu Pro 1045 1050 1055
- Phe Thr Ser Thr Gln Gln Gly Ser Ser Asn Phe Gly Ser Thr Ala Lys 1060 1065 1070
- Pro Leu Gln Ile Thr Glu Asn Ile Glu Val Met Ser Glu Thr Val Ala 1075 1080 1085
- Asn Gln Val Ala Lys Ser Ser Val Leu Pro Arg Leu Tyr Ser Ile Gln 1090 1095 1100
- Ala His Ile His Ile Ala Pro Asp Ile Val Ile Ser Thr Thr Ala Ile
  1105 1110 1115 1120
- Ile Asp Thr Gly Ala Thr Val Cys Cys Ile Ser Glu Lys Ile Val Pro \$1125\$ \$1130\$ \$1135
- Glu Ala Ala Lys Glu Gln Leu Asn Tyr Lys Val Asn Ile Ser Gly Ile 1140 1145 1150
- Ser Ser Gln Gln Gln Ile Gln His Arg Leu Lys Arg Gly Thr Leu Glu 1155 1160 1165
- Ile Ala Ser Asn Lys Tyr Ala Leu Pro Leu Cys Tyr Ile Ile Glu Leu 1170 1175 1180

- Asn Asp Lys Asp Asp Phe Ser Met Ile Leu Gly Cys Asn Phe Phe Lys 1185 1190 1195 1200
- His Met Gly Gly Gly Met Arg Phe Glu Gly Pro His Val Thr Phe Tyr 1205 1210 1215
- Lys Gly Ile Thr Thr Leu Ser Thr Ser Tyr Ala Asn Thr Gly Ile Asp 1220 1225 1230
- Thr Glu His Glu Gln Ile Thr Ser Thr Thr Ser Gln Ser Phe Lys Glu 1235 1240 1245
- Arg Phe Ser Pro Leu Met Asn Glu Leu Lys Ala Ala Gly Tyr Ile Gly 1250 1255 1260
- Glu Asp Pro Leu Lys His Trp Ser Lys Asn Lys Val Thr Cys Lys Leu 1265 1270 1275 1280
- Asp Leu Lys Asn Thr Glu Ile Thr Ile Gln Asp Lys Pro Leu Arg His 1285 1290 1295
- Ile Thr Pro Ala Leu Glu Gln Ser Tyr Gly Arg His Val Asn Ala Leu 1300 1305 1310
- Leu Met Leu Lys Val Ile Gln Pro Ser Lys Ser Arg His Arg Thr Met 1315 1320 1325
- Ala Phe Leu Val Asn Ser Gly Thr Thr Val Thr Ala Asp Gly Lys Glu 1330 1335 1340
- Ile Lys Gly Lys Glu Arg Met Val Phe Asn Tyr Lys Ala Leu Asn Asp 1345 1350 1355 1360
- Asn Thr Tyr Lys Asp Gln Tyr Ser Leu Pro Asn Ile Gln Leu Ile Leu 1365 1370 1375
- Lys Lys Val Ile Asn Ser Thr Ile Tyr Ser Lys Phe Asp Leu Lys Ser
- Gly Phe His Gln Val Ala Met Asp Pro Asp Ser Val Glu Trp Thr Ala 1395 1400 1405
- Phe Leu Val Pro Gln Gly Leu Tyr Glu Trp Leu Ala Met Pro Phe Gly 1410 1415 1420
- Leu Lys Asn Ala Pro Ala Val Phe Gln Arg Lys Met Asp Ala Val Phe 1425 1430 1435 1440
- Lys Gly Cys Glu Lys Phe Leu Ala Val Tyr Ile Asp Asp Ile Leu Val 1445 1450 1455
- Phe Ser Asn Asn Glu Glu Asp His Ala Lys His Leu Val Ile Met Leu 1460 1465 1470
- Gln Arg Cys Lys Glu His Gly Leu Val Leu Ser Pro Thr Lys Met Asn 1475 1480 1485

- Ile Ala Val Arg Glu Val Asn Phe Leu Gly Ala Thr Ile Gly Ser Arg 1490 1495 1500
- Lys Val Lys Leu Gln Glu Asn Ile Ile Lys Lys Ile Leu Asp Phe Asp 1505 1510 1515 1520
- Thr Glu Lys Leu Gln Ser Lys Lys Gly Leu Arg Ser Phe Leu Gly Ile 1525 1530 1535
- Leu Asn Tyr Ala Arg Asn His Ile Pro Asn Leu Gly Lys Ile Ala Gly
  1540 1545 1550
- Pro Leu Tyr Ser Lys Thr Ser Ile Tyr Gly Asp Ile Arg Phe Ser Ala 1555 1560 1565
- Ser Asp Trp Lys Leu Ile Asn Glu Ile Lys Ala Ile Val Glu Lys Leu 1570 1580
- Pro Pro Leu Asp Tyr Pro Pro Glu Gln Ala Tyr Ile Ile Ile Glu Ser 1585 1590 1595 1600
- Asp Gly Cys Met Glu Gly Trp Gly Ala Ile Cys Lys Trp Lys Leu Ala 1605 1610 1615
- Glu Tyr Asp Pro Lys Ser Ser Glu Gln Ile Cys Ala Tyr Ala Ser Gly
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- Lys Phe Ser Pro Ile Lys Ser Thr Ile Asp Ala Glu Ile Thr Ala Ala 1635 1640 1645
- Met Glu Gly Leu Glu Ala Phe Lys Ile His Tyr Leu Asp Lys Gln Lys 1650 1660
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- Thr Ser Val Asn Lys Pro Ser Arg Val Arg Trp Leu Lys Phe Ile Asp 1685 1690 1695
- Tyr Ile Thr Asn Thr Gly Ile Asp Val Lys Phe Glu His Ile Asp Ala 1700 1705 1710
- Lys Asn Asn Val Leu Ala Asp Thr Leu Ser Arg Leu Val Asn Thr Leu 1715 1720 1725
- Gln Asp Leu Pro Trp Leu Asp Glu Pro His Gln Asp Gln Thr Val Ser 1730 1740
- Leu Met Gln Glu Ile Glu Asp Ala Pro Leu Glu Ile Lys Gln Arg Ser 1745 1750 1755 1760
- Leu Thr Cys Leu Gln Arg Leu Ile Cys Arg Ser Phe Met Glu Asp Ser . 1765 1770 1775
- Thr Glu Glu Ala Ile His Phe Leu Glu Asp Asp Lys Ile Glu Pro Thr 1780 1785 1790

Ala Glu Ser Ser Thr Pro Ile Thr Leu Asp Glu Phe Ser Arg Lys Arg 1795 1800 Phe Gln Glu His Thr Asp Leu Leu Glu Glu Phe Gln Leu Thr Leu Leu 1820 Gln Ile Asn Leu Leu Glu Ala Ser Leu His Glu Arg Leu Met Lys Cys 1835 1825 1830 Gln Ser Tyr Ala Thr Arg Asp Asn Phe Trp Gly Asp Trp Leu Pro Glu 1850 Ala Arg Arg Asp Leu Leu Gln Ile Gln Leu Ala Lys Glu Ile Ile Glu 1865 1860 Lys Val Arg Glu Lys Leu His Ser Ile <210> 6 <211> 1190 <212> DNA <213> Taro bacilliform virus <400> 6 gccttcacgg gttagatggt tgaagttcat tgattatatt actaacactg gaattgatgt 60 taaatttgaa catattgatg ctaaaaataa tgtcttagct gacactctgt ccaggttagt 120 taacactttg caggatttgc catggctaga tgaacctcat caggatcaaa cagtctccct 180 gatgcaggaa attgaagatg cacctcttga aatcaagcag cgttctttaa cctgcttaca 240 gagactgatc tgtagaagct tcatggaaga ttctacagaa gaagctattc acttcctcga 300 agatgataag atcgagccaa cagctgagtc atcaacccca attactttgg atgaattttc 360 aagaaaaaga ttccaagaac atacagatct cttagaagaa tttcaattaa ctttgcttca 420 aattaatett ettgaageat etetteatga aegattaatg aaatgeeaaa gttatgeaae 480 gagagataat ttctggggag attggctgcc tgaagctcgc agagatcttt tgcaaattca 540 actagccaaa gaaatcatcg agaaggttcg tgaaaagctt cactctatct agataggatt 600 ctttgtgtgt gagtggcgca cttgcgcata atgtagtaag gaattattgt acttttacgc 660 tggacgccac taggctccat gctttctgta atgtcacatc acttttacga attgagcctc 720 ggggagccgt tcgtacaaag tagatgcttt tctagtcaca tctgactttt ctaaaagcag 780 atgccatcaa ctttattcga gttgagcctc ggggagccgc tcgtttaaag atgctctttt 840 gaaaatgaca gcgcgtggtg cgatgtcatt ctcacctttt ctttaatgcg tcggccaccg 900 actgcattat tgagattete ttatecettt gecaecteat eggttgcatt attgggattt 960 cgtatcgagt cgagggacga ggcctccact actcctataa aaggacctca acccctcaga 1020 agaacggcaa gccggaaaca ccgaacttcc cattettete ttgagtettt cetttgaget 1080 tgagcttgtg tgtaatcttt catagtttct aagtctccga agaacgagca ccgtctcgtg 1140 aaggagccga tccttttcca accacacttt ttctaccttg gtatcagagc 1190 <210> 7 <211> 598 <212> DNA <213> Taro bacilliform virus ataggattet ttgtgtgtga gtggcgcact tgcgcataat gtagtaagga attattgtac 60 ttttacgctg gacgccacta ggctccatgc tttctgtaat gtcacatcac ttttacgaat 120

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ccattcttct cttgagtctt tcctttgagc ttgagcttgt gtgtaatctt tcatagtttc 180
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